

critical discussion of the intriguing process of Pinocytosis by H. Holter of Copenhagen. More specialized papers on structure-function relationships in the mammary gland (Haguenau and Hollmann) and the pancreas (Hirsch) are followed by a series of papers on various aspects of protein synthesis. Hultin, *et al.*, describe experiments on amino acid incorporation by liver microsomes and ribonucleoprotein particles which appear to demonstrate that gross effects of various agents on protein metabolism in the whole animal are retained in the microsome function. A study of RNA and protein association in the ribonucleoprotein particle was presented by P. Siekevitz, particularly his work on the effect of spermine on this particle. Among other reports, including one by Chantrenne on the effect of 8-azaguanine on the specificity of protein synthesis in *B. cereus*, is an excellent paper by V. G. Allfrey on protein synthesis in isolated cell nuclei. It appears that this cell fraction contains the necessary amino acid-activating enzymes and RNA, and that amino acid uptake is accelerated by DNA and inhibited by histones.

The last short section of the volume deals with polysaccharides in three papers. The synthesis of cellulose by bacteria (S. Hestrin) and mucopolysaccharides in connective tissue (Dorfman and Schiller) pose a number of interesting problems, including that of the extracellular production of polysaccharide.

The volume is a mixture of fairly specific research reports and brief but critical reviews, which is inevitable in a symposium. There are sufficient reviews of lasting value in the volume to recommend it for a place on library and personal book-shelves.

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**Quantum Mechanics.** By EUGEN MERZBACHER, University of North Carolina. John Wiley and Sons, Inc., 440 Park Avenue South, New York 16, N. Y. 1961. xii + 544 pp. 15.5 × 23.5 cm. Price, \$12.00.

This book is an introductory text to non-relativistic quantum mechanics, covering the standard topics, with perhaps more emphasis on methods than the historical applications. Topics treated especially thoroughly, in comparison to comparable textbooks, are one-dimensional wave mechanics, spin matrices, linear vector spaces and rotations. The book also has a section on the formal theory of scattering, and shows also in many other places a modern viewpoint. There are many good problems which should lead the student to deeper insight.

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**Metabolic Pathways (Second Edition of Chemical Pathways of Metabolism).** Volume II. Edited by DAVID M. GREENBERG, Department of Biochemistry, School of Medicine, University of California, San Francisco, California. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1961. xiii + 814 pp. 16.5 × 23.5 cm. Price, \$24.00.

The enormous growth and development of the field of intermediary metabolism necessitated a new edition of the book, "Chemical Pathways of Metabolism." To achieve this end the editor has brought together a group of experts who deal thoroughly but concisely and critically with their respective fields.

This second edition constitutes not only an impressive extension and revision of the first edition's eight chapters in intermediary metabolism, namely, Nitrogen Metabolism of Amino Acids, Carbon Catabolism of Amino Acids, Biosynthesis of Amino Acids and Related Compounds, Metabolism of Sulphur Containing Compounds, The Synthesis of Proteins, Purines and Pyrimidines, Nucleotides and Nucleosides, and The Metabolism of Chlorophyll, but also presents four new and authoritative chapters: Thiamine, Metabolic Pathways Involving Niacin and Its Derivatives, The Biosynthesis of Flavine Derivatives, and The Biogenesis and Catabolism of Folic Acid and Vitamin B<sub>12</sub>.

This second edition contains not only a valuable highly annotated survey of fields of intermediary metabolism but in many instances presents a stimulating critique of some more controversial areas. An outstanding example of this is found in the chapter on protein synthesis.

Although any text on metabolic pathways is subject to more or less rapid obsolescence, this book meets a well defined need for special and authoritative surveys in metabolism and should receive the eager and welcoming approval of graduate students, research workers and academicians.

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**Elektrochemische Kinetik.** By Dr. KLAUS J. VETTER, Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin-Dahlem, Apl. Professor für Physikalische Chemie an der Freien Universität Berlin. Springer-Verlag, Heidelberg, Platz 3, Berlin-Wilmersdorf, Germany. 1961. xv + 698 pp. 17 × 23.5 cm. Price, DM. 156.

For many years following the initial work of Tafel, Butler, Frumkin, and others in the field of electrode kinetics, research centered primarily around the hydrogen evolution reaction. To those who have followed developments in electrochemical theory, the sudden shift of emphasis from hydrogen evolution kinetics to the general area of electrochemical kinetics is quite striking, as are the rapid developments during the last 15 years. With the publication of "Elektrochemische Kinetik," the subject has now moved from a chapter or two in electrochemistry textbooks to a comprehensive treatment in a single book devoted exclusively to this subject.

The treatment by Vetter is unusually thorough. Since nearly all of the theoretical aspects of electrochemistry have a general direct bearing on electrode kinetics, they must be brought into the discussion in some manner. The author has done a good job in seeing that the discussion of these points is directed toward the role they play in the kinetics, and thus avoids wandering off into extended irrelevancy. The only criticism which might be raised in this regard is the length of the thermodynamic treatment, which is given adequately in most electrochemistry texts, and need not be treated so extensively in connection with kinetics.

The bulk of the book is devoted to a detailed account of the many different forms of polarization and overvoltage phenomena, methods by which electrochemical reaction mechanisms may be determined, and a description of the experimental information available on redox, metal ion and gas electrodes. It is doubtful that any significant research on electrochemical kinetics has been omitted from the contents.

The book is not a text. However, since there are few, if any, courses devoted exclusively to electrochemical kinetics, there is no need for a text in this area. As reference material for persons engaged in electrochemical research, the book is a valuable addition to the working literature.

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**Abundance of Chemical Elements.** By V. V. CHERDYNTSEV. Translated by WALTER NICHIPORUK. The University of Chicago Press, 5750 Ellis Avenue, Chicago 37, Ill. 1961. x + 304 pp. 16 × 24 cm. Price, \$10.00.

**Interscience Monographs and Texts in Physics and Astronomy. Volume VII. The Abundance of the Elements.** By LAWRENCE H. ALLER, The Observatory of the University of Michigan, Ann Arbor, Michigan. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1961. xi + 283 pp. 15.5 × 23.5 cm. Price, \$10.00.

The composition of the universe has interested man since ancient times, and is still one of the fundamental questions of science. There are two main sources of information: samples of terrestrial and meteoritic material which can be analyzed chemically, and light received from extra-terrestrial bodies. The first source has been exploited mainly by chemists and geologists, and the second by astronomers. Important assistance has been provided by, respectively,